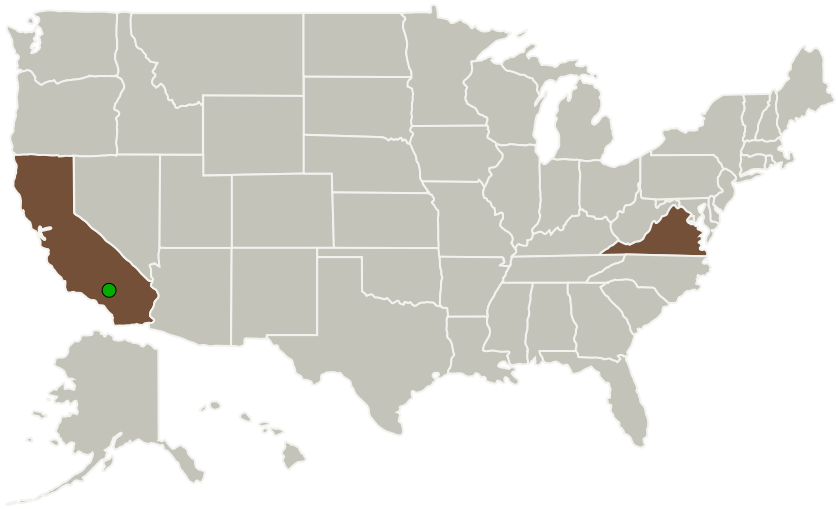
Dynamic ASE Modeling and Optimization of Aircraft with SpaRibs, Phase I

Completed Technology Project (2014 - 2014)

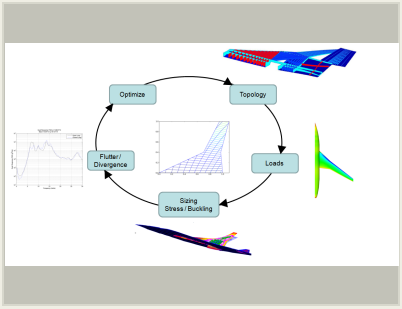
Project Introduction

We propose development and demonstration of a dynamic aeroservoelastic modeling and optimization system based on curvilinear internal structural arrangements of variable topology. This will allow combined sizing and topology optimization of complete airplane configurations including aeroservoelastic performance.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
M4 Engineering, Inc.	Lead Organization	Industry Women-Owned Small Business (WOSB)	Long Beach, California
Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California
Virginia Polytechnic Institute and State University(VA Tech)	Supporting Organization	Academia	Blacksburg, Virginia



Dynamic ASE Modeling and Optimization of Aircraft with SpaRibs Project Image

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Completed Technology Project (2014 - 2014)

Primary U.S. Work Locations	
California	Virginia

Project Transitions

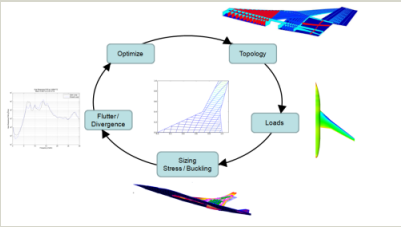
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140630)*

Images



Project Image
Dynamic ASE Modeling and Optimization of Aircraft with SpaRibs Project Image *(https://techport.nasa.gov/image/137234)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

M4 Engineering, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Myles Baker

Co-Investigator:

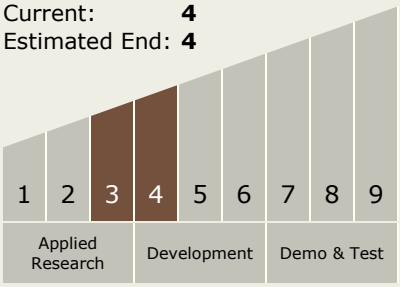
Myles Baker

Dynamic ASE Modeling and Optimization of Aircraft with SpaRibs, Phase I

Completed Technology Project (2014 - 2014)

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.5 Innovative, Multifunctional Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System